

Claims

What is claimed is:

1. A method for performing optimal power control of an optical disk drive based on a beta-parameter for determining whether a default power is equal to an optimal write-in power for writing data onto an optical disk; the method comprising:
5 setting a write-in data, the write-in data comprising a plurality of first sequences and second sequences;
 reading the write-in data from the optical disk and generating a
10 corresponding read result after writing the write-in data onto the optical disk with the default power; wherein the read result comprises a first read signal and a second read signal each corresponding to the first sequence and the second sequence; and
 processing an evaluation step according to a portion of the first read
15 signal, instead of the second read signal, with signal level greater or smaller than a default level for summing the beta-parameter.
2. The method of claim 1 wherein the beta-parameter does not change as the second read signal changes in the evaluation step.
- 20 3. The method of claim 1 wherein the first sequence comprises a plurality of first data streams each comprising a default number of bits with the same contents, while the second sequence comprises a plurality of second data streams each comprising a default number of
25 bits with the same contents; wherein a bit number of the first data stream is greater than a bit number of the second data stream.
4. The method of claim 1 further comprising:
 generating a slice signal according to the read result before
30 processing the evaluation step, wherein a portion of the slice signal with signal level equal to a first level corresponds to a portion of the read result with signal level greater than the default level, while a

portion of the slice signal with signal level equal to a second level corresponds to a portion of the read result with signal level smaller than the default level.

5 5. The method of claim 4 further comprising:

after generating the slice signal, determining starts and ends of the first read signal and the second read signal in the read result according to durations of the first level and the second level of the slice signal.

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6. The method of claim 5 further comprising:

when determining starts and ends of the first read signal and the second read signal, if a duration of the slice signal of the first level or the second level is greater than a default time, the read result
15 corresponds to the first sequence during the default time.

7. The method of claim 5 wherein the evaluation step determines starts and ends of the first read signal and the second read signal according to the slice signal for summing the beta-parameter during a duration
20 of the first read signal and not summing the beta-parameter during a duration of the second read signal.

8. The method of claim 4 further comprising: before generating the slice signal, high-pass filtering the read result for corresponding a portion
25 of the slice signal with signal level equal to a first level to a portion of the filtered read result with signal level greater than the default level, and corresponding a portion of the slice signal with signal level equal to a second level to a portion of the filtered read result with signal level smaller than the default level.

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9. The method of claim 1 wherein when processing the evaluation step during a duration of the first read signal, a capacitor is charged if the

signal level of the first read signal is greater than the default level, while the capacitor is discharged if the signal level of the first read signal is smaller than the default level.

- 5 10. The method of claim 9 wherein when processing the evaluation step, the capacitor is prevented from being charged and discharged during the duration of the second read signal.
11. The method of claim 10 further comprising: evaluating the
10 beta-parameter according to the capacitor charge.
12. An optical disk drive comprising:
- 15 an access circuit for writing a write-in data onto an optical disk with a default power, the access circuit capable of reading the written write-in data in the optical disk and generating a corresponding read result; wherein the write-in data comprises a plurality of first sequences and second sequences, the read result comprising a first read signal and a second read signal each corresponding to the first sequence and the second sequence;
20 and
- an evaluation module for summing a beta-parameter in a storage unit according to a portion of the first read signal, instead of the second read result, with signal level greater or smaller than a default level.
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13. The optical disk drive of claim 12 wherein the first sequence comprises a plurality of first data streams each comprising a default number of bits with the same contents, while the second sequence comprises a plurality of second data streams each comprising a default number of bits with the same contents; wherein a bit number
30 of the first data stream is greater than a bit number of the second data stream.

14. The optical disk drive of claim 12 further comprising:
a slicer between the access circuit and the evaluation module for
generating a slice signal according to the read result, wherein a
portion of the slice signal with signal level equal to a first level
5 corresponds to a portion of the read result with signal level
greater than the default level, while a portion of the slice signal
with signal level equal to a second level corresponds to a portion
of the read result with signal level smaller than the default level.
- 10 15. The optical disk drive of claim 14 wherein the evaluation module
comprises a decision module for determining starts and ends of the
first read signal and the second read signal in the read result
according to durations of the first level and the second level of the
slice signal.
- 15 16. The optical disk drive of claim 15 wherein when the decision module
is determining starts and ends of the first read signal and the second
read signal, if a duration of the slice signal of the first level or the
second level is greater than a default time, the decision module
20 determines the read result corresponding to the first sequence
during the default time.
17. The optical disk drive of claim 15 wherein the evaluation module
further comprises:
25 a charger for providing electricity for charging/discharging the
storage unit for summing beta-parameter stored in storage unit;
and
a switch between the charger and the storage unit for controlling
connection between the charger and the storage unit; the switch
30 capable of transmitting electricity provided by the charger to the
storage unit during the duration of the first read signal for
summing the beta-parameter based on the first read signal

5 according to starts and ends of the first read signal and the second read signal provided by the decision module; the switch stopping transmitting electricity provided by the charger to the storage unit during the duration of the second read signal for stopping summing of the beta-parameter based on the second read signal.

18. The optical disk drive of claim 14 further comprising:
10 a high-pass filter between the access circuit and the slicer for high-pass filtering the read result and transmitting the filtered read result to the slicer.

19. The optical disk drive of claim 12 wherein the storage unit comprises a capacitor for storing charge corresponding to the beta-parameter.

15 20. The optical disk drive of claim 19 further comprising:
a control module for controlling operations of the optical disk drive, the control module capable of evaluating the beta-parameter according to charge stored in the capacitor.

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